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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,684	09/29/2003	Dana R. Johansen	X-0301	1234

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EXAMINER

SWIATEK, ROBERT P

ART UNIT	PAPER NUMBER
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3643

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/671,684

Applicant(s)

JOHANSEN, DANA R.

Examiner

Robert P. Swiatek

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 8-30 is/are rejected.
- 7) ☒ Claim(s) 5-7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9-29-03.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Kelly (US 5,626,310: Ref. C on Information Disclosure Statement by Applicant). The Kelly reference discloses a space launch system including a towing vehicle 19, a towed launch vehicle 1, and an interconnecting tether 18. The towed vehicle 1 is in the form of an aircraft having wings 2, a propulsion system 6-9, and a contained spacecraft 15 having a propulsion system 12, 13 capable of placing it into orbit. The towing vehicle 19 of Kelly tows the launch vehicle to a desired height, with the launch vehicle flying above the towing aircraft 19 to avoid wing-tip vortices. At the desired altitude, the propulsion system 6-9 is ignited, the tether cast off, and the launch vehicle accelerated to a substantial velocity and altitude. Altitude is achieved remotely through manipulation of the launch vehicle's lifting elements and propulsion system; ultimately, the spacecraft is separated from the launch vehicle and its own propulsion system ignited until it achieves orbital velocity. Meanwhile, the towing aircraft retracts the tether via a winch mechanism (see column 7, lines 33, 34, of Kelly) and returns for a landing.

Claims 8-10, 12-21, 26-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Kelly. The pertinent features of the Kelly reference are set forth in conjunction with the above

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rejection. As to claim 8, the launch console and pilot located in the towing vehicle of Kelly cause the towed launch vehicle to move at an angle to the direction of movement of the towing vehicle until the launch vehicle assumes an attitude above the towing aircraft (see column 7, lines 62-66, and column 8, lines 1-7, of Kelly). Lines 7-9 of instant claim 8 are deemed to constitute method step limitations in an article claim and have not been given weight; moreover, claim 8 is believed broad enough to encompass the scenario set forth in Kelly wherein acceleration of the launch vehicle due to action of the first stage rocket engine and the subsequent insertion of the spacecraft into orbit (at a velocity considerably exceeding that of the towing vehicle) are accomplished after release of the towing line. With regard to claim 21, the airfoils on the towed launch vehicle of Kelly are deemed to be "attached to [the] tether."

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kelly. Although the spacecraft of Kelly is not disclosed as achieving escape velocity nor the towing vehicle as being supersonic, it nonetheless would have been obvious to one skilled in the art to employ, for example, a lunar probe with the launch vehicle of Kelly as well as a supersonic towing aircraft in order to minimize launch costs and increase the launch vehicle's initial velocity (thereby reducing performance requirements for the spacecraft's rocket motors), respectively.

Claims 23-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Pearson (US 4,580,747). The patent to Pearson discloses a towing vehicle 10, a towed vehicle 13 in the form of a lifting body, an interconnecting tether 12, a reel mechanism 11, and a controller 30 for controlling the angle of attack of the lifting body. The lifting body also could be controlled from the vehicle 10 (see column 3, lines 17-21, of Pearson); moreover, tether 12 of Pearson is at least 50 miles in length, as per column 5, lines 25-27, of the patent. Since the body of vehicle 13 of Pearson is configured as an airfoil, the body as a whole is construed as constituting at least one wing. As to claim 24, the tether 12 of Pearson is considered capable of retaining "a launch vehicle accelerating under at least two gravities."

Claim 29 is rejected under 35 U.S.C. 102(b) as being anticipated by Duer (US 2,400,400). The patent to Duer discloses first towing vehicle 1, first length of tether 6, second towing vehicle 2 connected to the first length of tether, second length of tether 6 connected at one end to the rear of second towing vehicle 2, and an object 3 (in this case, another aircraft) connected to an opposite end of second length of tether 6. The pilot of aircraft 1 is considered to control the movement of aircraft 2, 3 (see page 3, column 1, lines 26-28, of Duer).

Claim 30 is rejected under 35 U.S.C. 102(b) as being anticipated by Duer. When the pilot of aircraft 1 of Duer banks the aircraft, the pilots of the towed aircraft likewise will bank theirs in turn, although not simultaneously with aircraft 1. When the second aircraft 2 ("the first object") banks, it will momentarily be at a second angle with respect to that of aircraft 1 and will be accelerating due to its change of direction. Likewise, aircraft 3 of Duer ("the second object") temporarily will assume a third heading and also accelerate, i.e., change direction, due to the banking maneuver.

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Claims 5-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 20, 26-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 20, line 2, "said reel" lacks a prior antecedent basis; in claim 26, line 7, "said adjustable connector" lacks a prior antecedent.

In claim 25, line 1, "retractable" should be changed to -retractably-.

The abstract of the disclosure is objected to because in line 1, "is disclosed" should be deleted. Correction is required. See MPEP § 608.01(b).

The patents to Rasor (US 2,388,013) and Patterson (US 4,354,419) have been cited to provide additional examples of aircraft towing systems.

RPS: ©703/308-2700
17 August 2004

Robert P. Swiatek
ROBERT P. SWIATEK
PRIMARY EXAMINER
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